

1 **Claims**

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3 1. A duplex system for an inkjet printer having a printhead for printing a media
4 sheet, the system comprising:

5 a front duplex module; and

6 a back duplex module detachably coupled to the front duplex module, wherein
7 the front duplex module comprises a first roller assembly for advancing the media sheet
8 to the printhead along a simplex media path; and

9 a second roller assembly disposed along the simplex media path for
10 handling the media sheet.

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12 2. The duplex system as in claim 1, wherein the first and second roller assemblies
13 are coupled to each other to provide a coordinated control for handling the media sheet.

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15 3. The duplex system as in claim 1, wherein the printhead is disposed between the
16 first and second roller assemblies with a distal displacement between the first and
17 second roller assemblies being determined by the space required by the printhead and
18 mechanical means coupled thereto for operating the printhead.

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20 4. The duplex system as in claim 1, wherein the back duplex module comprises:
21 a duplex media path; and
22 a duplex roller for receiving the media sheet from the front duplex module and
23 advancing the same to the first roller assembly along the duplex media path,
24 wherein the duplex roller is disposed down stream from the second roller
25 assembly along the duplex media path.

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27 5. The duplex system as in claim 4, wherein the front duplex module further
28 comprises a duplex media path entry through which the media sheet is advanced
29 backward to the back duplex module for flipping the media sheet.

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31 6. The duplex system as in claim 1, wherein the second roller assembly is capable
32 of advancing the media sheet in forward and backward directions.

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2 7. A method for duplex printing, the method comprising the steps of:
3 retrieving a media sheet from a media storage tray and feeding the same along a
4 media path entry to a first roller assembly;
5 advancing, using the first roller assembly, the media sheet via a simplex media
6 path to a printhead for printing on a first side of the media sheet; and
7 flipping, upon finish printing on the first side of the media sheet, the media
8 sheet and advancing the same to the printhead for printing on a second side of the
9 media sheet.

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11 8. The method as in claim 7, wherein the step of advancing the media sheet along
12 the simplex media path comprises the steps of:
13 allowing the first roller assembly to advance the media sheet along the simplex
14 media path while the printhead prints the first side of the media sheet; and
15 handing over the task of advancing the media sheet from the first roller
16 assembly to a second roller assembly when the trailing edge of the media sheet leaves
17 the first roller assembly,
18 wherein the printhead is disposed between the first and second roller
19 assemblies.

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21 9. The method as in claim 7, wherein the step of flipping the media sheet
22 comprises the steps of:
23 receiving the leading edge of the media sheet using a second roller assembly
24 and advancing the media sheet until the trailing edge thereof reaches a duplex media
25 path entry area;
26 delivering the trailing edge of the printed media sheet into the duplex media
27 path entry by reversing the rolling direction of the second roller assembly; and
28 advancing the media sheet from the duplex media path entry to a duplex media
29 path and out therefrom to the simplex media path,
30 wherein the exit portion of the duplex media path aligns with the simplex media
31 path.

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1 10. The method as in claim 9, wherein the step of advancing the media sheet from
2 the duplex media path entry to the duplex media path and out therefrom to the simplex
3 media path comprises the steps of:

4 advancing the media sheet from the duplex media path entry to the duplex
5 media path using the second roller assembly rolling in the reverse direction; and

6 advancing the media sheet along the duplex media path and out therefrom to the
7 simplex media path using a third roller disposed downstream from the second roller
8 assembly along the duplex media path.

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10 11. The method as in claim 9, wherein the step of advancing the media sheet from
11 the duplex media path entry to the duplex media path and out therefrom to the simplex
12 media path comprises the steps of:

13 advancing the media sheet from the duplex media path entry to the duplex
14 media path using the second roller assembly rolling in the reverse direction; and

15 advancing the media sheet along the duplex media path using a transfer roller;
16 and

17 advancing the media sheet along the duplex media path and out therefrom to the
18 simplex media path using a third roller disposed downstream from the transfer roller
19 assembly along the duplex media path.

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21 12. An inkjet printer comprising:

22 a printhead for printing a media sheet; and

23 a duplex system wherein the duplex system comprises a front duplex module;
24 and

25 a back duplex module detachably coupled to the front duplex module, wherein
26 the front duplex module comprises a first roller assembly for advancing the media sheet
27 to the printhead along a simplex media path; and

28 a second roller assembly disposed along the simplex media path for
29 handling the media sheet.

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31 13. The inkjet printer as in claim 12, wherein the first and second roller assemblies
32 are coupled to each other to provide a coordinated control for handling the media sheet.

1 14. The inkjet printer as in claim 12, wherein the printhead is disposed between the
2 first and second roller assemblies with a distal displacement between the first and
3 second roller assemblies being determined by the space required by the printhead and
4 mechanical means coupled thereto for operating the printhead.

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6 15. The inkjet printer as in claim 12, wherein the back duplex module comprises:
7 a duplex media path; and
8 a duplex roller for receiving the media sheet from the front duplex module and
9 advancing the same to the first roller assembly along the duplex media path,
10 wherein the duplex roller is disposed down stream from the second roller
11 assembly along the duplex media path.

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13 16. The inkjet printer as in claim 15, wherein the front duplex module further
14 comprises a duplex media path entry through which the media sheet is advanced
15 backward to the back duplex module for flipping the media sheet.

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17 17. The inkjet printer as in claim 12, wherein the second roller assembly is capable
18 of advancing the media sheet in forward and backward directions.